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10/713,525	11/13/2003	Warren Burch	MSFT 5089 (MS#301491.01)	9309

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SENNIGER POWERS
ONE METROPOLITAN SQUARE
16TH FLOOR
ST LOUIS, MO 63102

EXAMINER	
BLOOM, NATHAN J	
ART UNIT	**PAPER NUMBER**
2112	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	01/22/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/22/2007.

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uspatents@senniger.com

Office Action Summary	Application No.	Applicant(s)	
	10/713,525	BURCH ET AL.	
	Examiner	Art Unit	
	Nathan Bloom	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☒ Claim(s) *22-26,28-32, and 39-44* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/13/2003 , 7/26/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

Claim Objections

1. Claims 22-26 and 28-32 are objected to because of the following informalities: each of these claims is dependent on claim 21 and refers to a value P that has no antecedent basis in claim 21. For purpose of furthering prosecution instant the value 2^N in instant claim 21 is being substituted with P. Appropriate correction is required.

2. Claims 28-32 are objected to because of the following informalities: each of these claims is dependent on claim 27 and refers to pixels, which have no antecedent basis in the parent claim 27. Instant claim 27 refers to modifying values from a plurality of values, it is understood from previous claims that these values are probably values of the pixels in a digital video image and will be interpreted as such for the purpose of furthering the prosecution of this application. These claims need to be corrected such that the term pixel has antecedent basis. Appropriate correction is required.

3. Claims 39-44 objected to under 37 CFR 1.75 as being duplicates of claims 33-38. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element, which defines structural and functional interrelationships between the computer program, and the rest of the computer, which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Rielly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in Sec. 101.

... a signal does not fall within one of the four statutory classes of Sec. 101.

... signal claims are ineligible for patent protection because they do not fall within any of the four statutory classes of Sec. 101.

Claims 21-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 21-26 are drawn to functional descriptive material recorded on a computer-readable medium. Normally, the claim would be statutory. However, the specification, at paragraph 44 defines the claimed computer readable medium as encompassing statutory media such as "ROM', "hard drive", "optical drive", etc, as well as ***non-***

statutory subject matter such as a carrier wave (including acoustic, RF, infrared, and other wireless media) modulated with descriptive material.

A signal embodying functional descriptive material is neither a process nor a product (i.e. a tangible "thing' and therefore does not fall within one of the four statutory classes of 35 U.S.C. 101. Rather, "signal" is a form of energy, in the absence of any physical structure or tangible material.

Because the full scope of the claim as properly read in light of the disclosure encompasses non-statutory subject matter, the claim as a whole is non-statutory. The examiner suggests amending the claim to include the disclosed tangible computer readable media, while at the same time excluding the intangible media such as signals and carrier waves. Any amendment to the claim should be commensurate with its corresponding disclosure.

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV.C, reads as follows:

> While abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function may well be. In evaluating whether a claim meets the requirements of 35 U.S.C. 101, the claim must be considered as a whole to determine whether it is for a particular application of an abstract idea, natural phenomenon, or law of nature, rather than of an abstract idea, natural phenomenon or law of nature itself.

> For claims including such excluded subject matter to be eligible, the claim must be for a practical application of the abstract idea, law of nature, or natural phenomenon. Diehr, 450 U.S. at 187, 209 USPQ at 8 (application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."); Benson, 409 U.S. at 71, 175 USPQ at 676 (rejecting formula claim because it "has no substantial practical application").
>
> To satisfy 35 U.S.C. 101 requirements the claim must be for a practical application of the 25 U.S.C. 101 judicial exceptions, which can be identified in various ways:
>
> > The claimed invention "transforms" an article or physical object to a different state or thing.
> >
> > The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

Claim 27 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 27 recites the mere manipulation of data or an abstract idea, or merely solves a mathematical problem without a limitation to a practical application. A practical application exists if the result of the claimed invention is "useful, concrete and tangible" (with the emphasis on "result")(Guidelines, section IV.C.2.b). A "useful" result is one that satisfies utility requirement of section 101, a "concrete" result is one that is "repeatable" or "predictable", and a "tangible" result is one that is "real", or "real-world", as opposed to "abstract" (Guidelines, section IV.C.2.b). Claim 27 merely manipulates data without ever producing a useful, concrete and tangible result.

Instant claim 27 clearly states that is a method of modifying values from a plurality of values and then goes on to give the steps of this modification. However, these values remain abstract and thus do not produce a useful, concrete and tangible result.

In order for the claimed product to produce a "useful, concrete and tangible" result, recitation of one or more the following elements is suggested:

- The manipulation of data that represents a physical object or activity transformed form outside the computer.
- A physical transformation outside the computer, for example in the form of a pre or post computer processing activity.
- A direct recitation of a practical application.

Applicant is also advised to provide a written explanation of how and why the claimed invention (either as currently recited or as amended) produces a useful, concrete and tangible result.

For purposes of furthering prosecution the values will be considered as values of pixels in a digital video image.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 15-19, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Herf (US 6925210 B2).

Instant claim 1 encompasses a method of blurring a digital video image having a plurality of color (note: grayscale is color) pixels. The method comprises identifying a pixel to be blurred from the plurality of pixels and select P pixels from the plurality of pixels. Then determine a blurred value as a function of the P selected pixels and replace the particular pixel with the blurred value. Herf discloses in lines 33-50 of column 1 the use of a box filter to blur a digital image pixel by pixel. In this method the box filter is used to take the average of the selected P pixels surrounding the center (particular) pixel or what is chosen to be the center pixel and then input this average into the particular pixel. This is done for each desired pixel in the digital image and results in a blurred version of the original image.

Instant claim 15 encompasses the system that performs the method of claim 1. The system is composed a memory for storing the values of the pixels, a processor for identifying, selecting, and determining the pixels and their values, and a display for displaying these values. Herf discloses the method as per rejection of instant claim 1 and discloses the system in lines 60+ of column 2, and lines 0-14 of column 3. The system as disclosed by Herf comprises a processor, graphics hardware device, RAM (memory), hard drive memory, a display device, and other common computer components.

Instant claims 16-19 describe method limitations to the system of claim 15 that can perform these limitations as described in claims 16-19 without additional modifications to the structure of the apparatus. Therefore, these claims do not further limit the structure of the apparatus of parent claim 15. The apparatus of claim 15, such as a personal computer, can be programmed to perform the additional steps of the claims 16-19 without any further structural modification to the claimed apparatus. Therefore, since these claims do not further limit the

claimed apparatus, they are not given any patentable weight and the claimed structure is met as indicated in the discussion of claim 15.

Instant claim 27 encompasses the method of modifying a digital image as is described by instant claim 1. Since blurring is a way of modifying a digital image and has been shown to be disclosed by Herf then the rejection of instant claim 1 applies to instant claim 27.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herf.

Instant claim 21 encompasses the computer readable medium that performs the method described in claim 1. Since it has been shown in the rejection of instant claim 1 that the method has been disclosed by Herf then it would have been obvious to one of ordinary skill in the art to write the methods into a computer readable medium so as to implement the disclosed method.

5. Claims 1-13, 21-25, 27-31, 33-37, and 39-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herf in further view of Koike (US 5408338).

Instant claim 2 further limits the method of claim 1. The value P must be $P=2^N$, where N=1, 2, or 3 and wherein the selected pixels are different from and contiguous to the particular

pixel. As per the rejection of instant claim 1 Herf discloses the blurring of the digital image based on the average of a plurality of pixels. However, Herf does not disclose a particular number of pixels used in this operation. Koike discloses in Figure 2, lines 20-44 of column 1, and in lines 1-51 of column 4 an image processing unit and method in which smoothing is performed. The smoothing operation as described by Koike is an evenly weighted average that is identical to the blur operation by this application. This smoothing (blurring) involves selecting a particular pixel and $P=2^N$ (with N= 3 or 4) other pixels and blurring the particular pixel based on the average of the pixels. However, Koike does not exclude the particular pixel from the calculation of the blurred value as can be seen in the equation provided and instead excludes pixel H. The reason a pixel is excluded from the calculation is that there is a benefit in digitally processing in powers of 2 and thus operating with 8 pixels is desired. Therefore arbitrarily removing a pixel such as pixel H is a benefit and the choice of H is merely an example used to illustrate Koike's process. It would have been obvious to one of ordinary skill in the art to exclude the particular pixel X or any of the other particular pixels to achieve the desired number of pixels in the selected set as shown by Koike to achieve the benefits of digitally processing powers of 2. Furthermore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Koike with Herf since they both relate to the smoothing (blurring) of digital images to achieve improved computational efficiency.

Instant claim 28 encompasses the method of modifying a digital image as is described by instant claim 2. Since blurring is a way of modifying a digital image and has been shown to be disclosed by Herf and Koike then the rejection of instant claim 2 applies to instant claim 28.

Instant claims 3 and 5 provide the additional limitation to instant claim 1 that $P=2^N$ and that each of the plurality of pixels is selected as a particular pixel and is blurred by choosing an additional 2M (where M is a positive integer) pixels from the plurality of pixels to perform the blurring function on this additional particular pixel. The processes as disclosed by both Herf and Koike operate on the entire image by iteratively selecting another particular pixel and a group of P other pixels to perform the smoothing or blurring function on. This is very common for image processing and is known to one of ordinary skill in the art that when the entire image or large portions of an image are to be modified that it will be necessary to repeat the modification on several or all pixels within the region. Furthermore, instant claims 4 and 6 provide the additional limitation as is described in instant claim 2 and the same rejection applies to this limitation.

Instant claim 29 encompasses the method of modifying a digital image as is described by instant claim 3. Since blurring is a way of modifying a digital image and has been shown to be disclosed by Herf and Koike then the rejection of instant claim 3 applies to instant claim 29.

Instant claim 30 encompasses the method of modifying a digital image as is described by instant claim 5. Since blurring is a way of modifying a digital image and has been shown to be disclosed by Herf and Koike then the rejection of instant claim 5 applies to instant claim 30.

Instant claim 7 provides the limitation to the method of claim 1 that $P=2^N$ and that the blurring function is done by averaging the values of the selected pixels which is the same method of blurring described by Herf and Koike (blurring). As per the rejection of instant claim 2 Herf and Koike have disclosed this limitation.

Instant claim 31 encompasses the method of modifying a digital image as is described by instant claim 7. Since blurring is a way of modifying a digital image and has been shown to be disclosed by Herf and Koike, the rejection of instant claim 7 applies to instant claim 31.

Instant claims 8, 10, and 12 provide the limitation to the method of blurring as described in instant claim 7. The method described is masking the N least significant bits of the value of each selected pixel and dividing the masked value of each selected pixel by 2^N to get a divided value for each selected pixel. Furthermore, instant claims 9, 11, and 13 provide the limitation to 8, 10, and 12 (respectively) that this division is done by right shifting the bits of each pixel by N. Koike and Herf do not disclose using these different sizes of filters or the number of selected pixels used to compute the blurred or smoothed value, but it is known to one of ordinary skill in the art that varying these values will affect the images in certain ways. It is known to one of ordinary skill in the art that the value P (the number of selected pixels), which is directly related to N, affects the blurred (or smoothed) value by averaging it over range of pixels. For example if P is very small such is the case when N=1 then the particular pixel is averaged with only one other pixel and thus it becomes statistically less likely to be representative of other pixels within that region of the image. Additionally, as N increases to 2 or 3 then the blurred value is better represented by pixels in its region and will be more likely to have a value that is representative of the pixel values in its region. Furthermore, as the size of the filter or the number of selected values increases (or decreases) the amount of computation necessary to compute the blurred value for each pixel increases (or decreases). Therefore, the methods as disclosed by Herf and Koike are known to be applicable for values other than those used in the disclosed examples.

Herf does not disclose the averaging method as described in claims 8-13 involving the method of shifting the bits by N and then summing them together. However, Koike discloses in lines 1-48 of column 4 that using a set of pixels that is a power of 2 presents computational advantages when using digital processing. It is known to one of ordinary skill in the art how to average a set of values and that shifting a string of binary bits to the right by N will divide that string of binary bits by 2^N. This method of logical shifting is common in digital processing and is preferred due to its computational savings by requiring just N logical bit shifts as opposed to the more complex division that requires many more steps and thus more computational time. Therefore, it would have been obvious to one of ordinary skill in the art that Koike discloses this method of averaging as described in claims 8-13 so as to increase the computational efficiency of the disclosed method.

Instant claims 22-25 encompass the computer readable medium which stores the instructions that perform the methods as described in claims 2,3,5, and 7 respectively. Since it has been established per the rejection of instant claims 1-7 that Herf and Koike disclose these methods then it would have been obvious to one of ordinary skill in the art to write these methods into a computer readable so as to implement the disclosed method.

Instant claims 33 and 39 encompass the methods of claims 8-13. Instant claim 33 and 39 are more general and do not specify a specific value for N as is done in claims 8-13, but the principle of the methods as disclosed by Herf and Koike remains the same regardless of the value of N. Instant claim 34 and 40 specifically list N=1,2, or 3 as a limitation to claim s33 and 39 and that selected pixels must be different and contiguous to the particular pixel. However, as is shown in rejection of claim 2 Herf and Koike teach this limitation. Therefore, as per the

rejection of claims 2, and 8-13 the teachings of Herf and Koike have disclosed the method of claims 33 and 34.

Instant claims 35,41 and 36,42 further limit the method of claim 33,39 by requiring that another of the selected pixels is selected as a particular pixel and then the blurring process is repeated upon this additional particular pixel. Claim 35 requires only one of the selected pixels be selected as an additional particular pixel, and claim 36 requires that all of the selected pixels be selected as additional particular pixels. As per rejection of claims 3 and 5 the teachings of Herf and Koike have disclosed these limitations.

Instant claims 37 and 43 further limit the method of claims 33 and 39 by specifying that the determining comprises calculating and averaging of the selected pixels and the replacing involved inserting this value in as the value of the particular pixel. As per the rejection of instant claim 7 the teachings of Herf and Koike have disclosed this limitation.

6. Claims 1, 14-15, 21, 26-27, 32-33, 38-39, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herf in further view of Koike and Kawano (US 6480302).

Instant claim 14 further limits the method of claim 1 wherein the determining and replacing is accomplished by processing all color channels (components) of the selected pixel in parallel. Herf discloses the processing of an 8-bit grayscale image that does not have multiple color components. However, Kawano discloses an image processing method and apparatus that operates on each pixel of a grayscale image. Furthermore, Kawano discloses in lines 24-44 of column 19 that it is possible to operate on a color image using a grayscale technique or apparatus by dividing the image up into its color channels (components) and operating on each channel

individually in parallel in each of the image processing units. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Kawano with Herf to provide one of ordinary skill in the art with the ability to use grayscale image techniques on color images.

Instant claim 20 further limits the method of claim 15 wherein $P=2^N$ and the determining and replacing is accomplished by processing all channels (components) of the selected pixel in parallel. As stated in the rejection of claim 14, Kawano discloses that grayscale image processing techniques can be used on a color image. Furthermore, Kawano discloses that this system would include multiple image processing units in order to implement the parallel processing for color image processing.

Instant claim 26 further limits the medium of claim 21 and encompasses the computer readable medium that performs the method described in claim 14. Since it has been shown in the rejection of instant claim 1 that the method has been disclosed by Herf in combination with Koike and Kawano then it would have been obvious to one of ordinary skill in the art to write the methods into a computer readable medium so as to implement the disclosed method.

Instant claim 32 further limits the method of claim 27 and encompasses the method of modifying a digital image as is described by instant claim 14. Since blurring is a way of modifying a digital image and has been shown to be disclosed by Herf in combination with Koike and Kawano then the rejection of instant claim 14 applies to instant claim 32.

Instant claims 38 and 44 further limit the method of claims 33 and 39 and encompass the method of modifying a digital image as is described by instant claim 14. As per the rejection of

claim 14 the teaching of Herf in combination with Koike and Kawano disclose the method of claim 38 and 44.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Bloom whose telephone number is 571-272-9321. The examiner can normally be reached on Monday through Thursday from 7:30 am to 5:00 pm (EST). The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Stucker, can be reached on 571-272-0911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

01/09/2007

Nathan Bloom

NB

JEFFREY STUCKER
SUPERVISORY PATENT EXAMINER